

DOCKETED

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Mobile Source Strategies to address Climate and Ozone Requirements

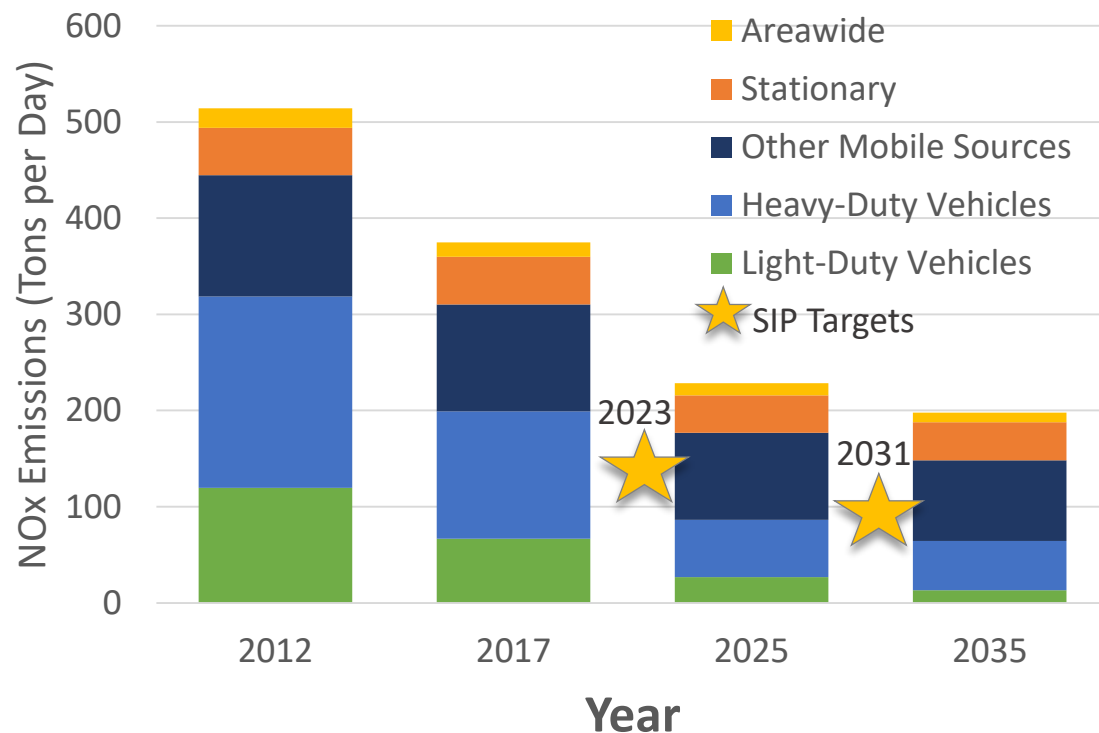
Joshua Cunningham
Chief, Advanced Clean Cars Branch
California Air Resources Board

December 4, 2017

Need large emission reductions beyond current programs

NOx, South Coast

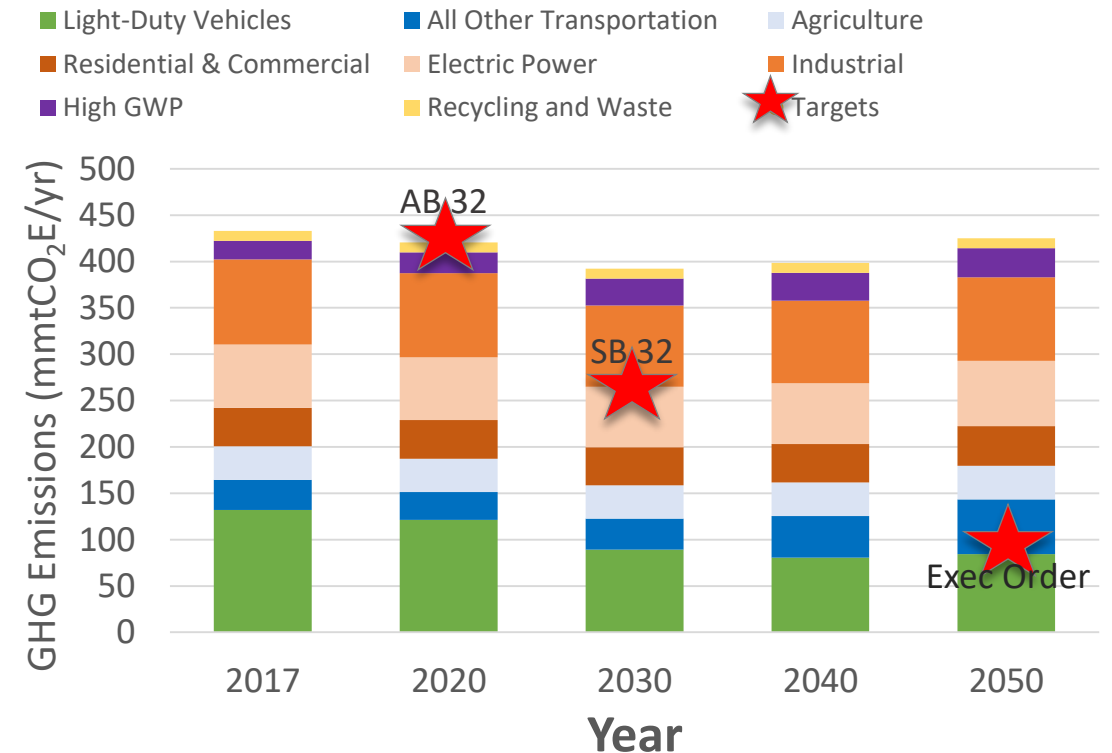
Under Current Programs



Source: CEPAM 2016 SIP, <https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php>

GHGs, Statewide

Under Current Programs



Note: CARB 2030 Scoping Plan contains strategies for achieving 2030 GHG target, https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

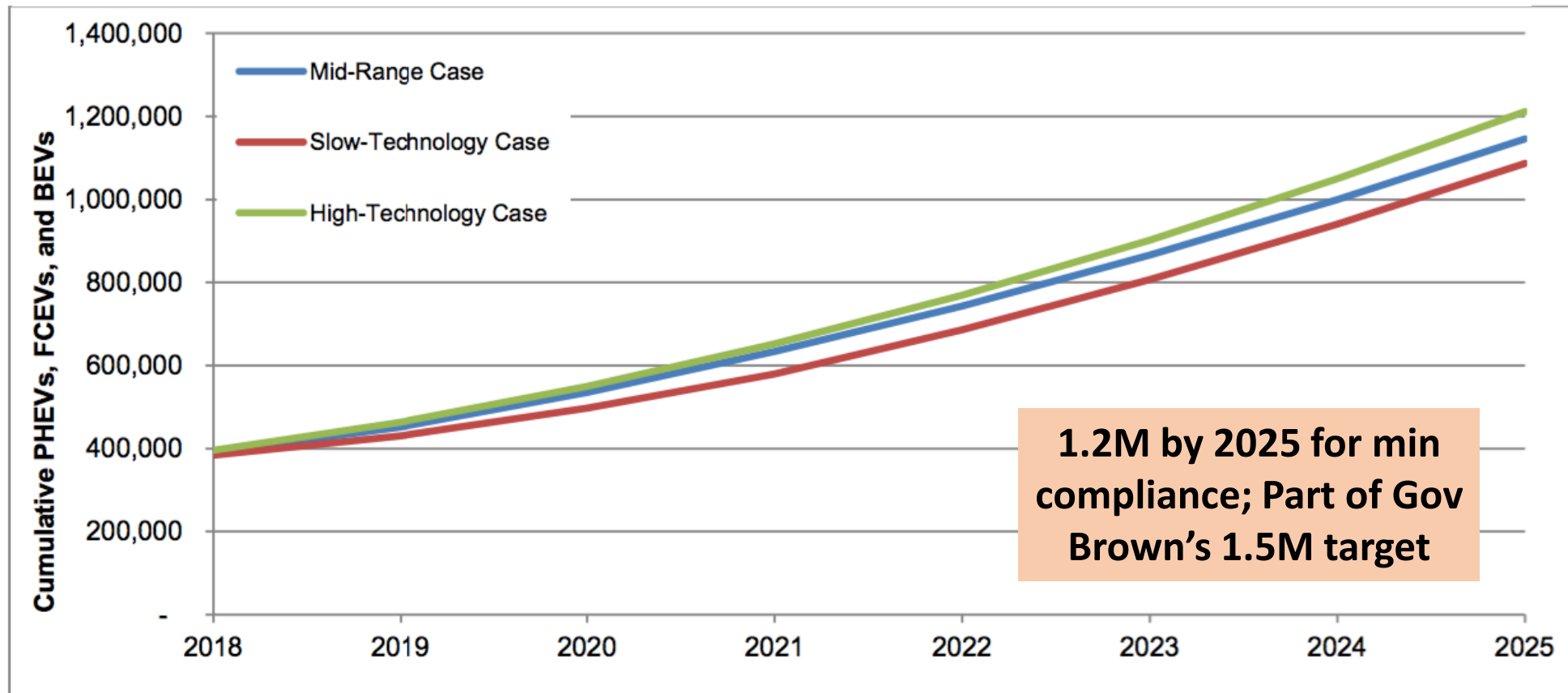
Achieving success in transportation sustainability

- Promote vibrant communities and landscapes through better planning efforts to curb vehicle-miles-traveled and increase walking, biking and transit
- Build on the State's successful regulatory and incentive-based policies to quickly make clean cars, trucks, buses, and fuels definitive market winners
- Coordinate agency activities to ensure that emerging automated and connected vehicle technologies reduce emissions
- Improve freight and goods movement efficiency and sustainability to enable California's continued economic growth
- Connect California's communities with a state-of-the-art high-speed rail system



Updated Minimum Compliance for LDV ZEV Regulation by 2025

Cumulative sales, 2010 – 2025. See CARB's Midterm Review report, Jan 2017

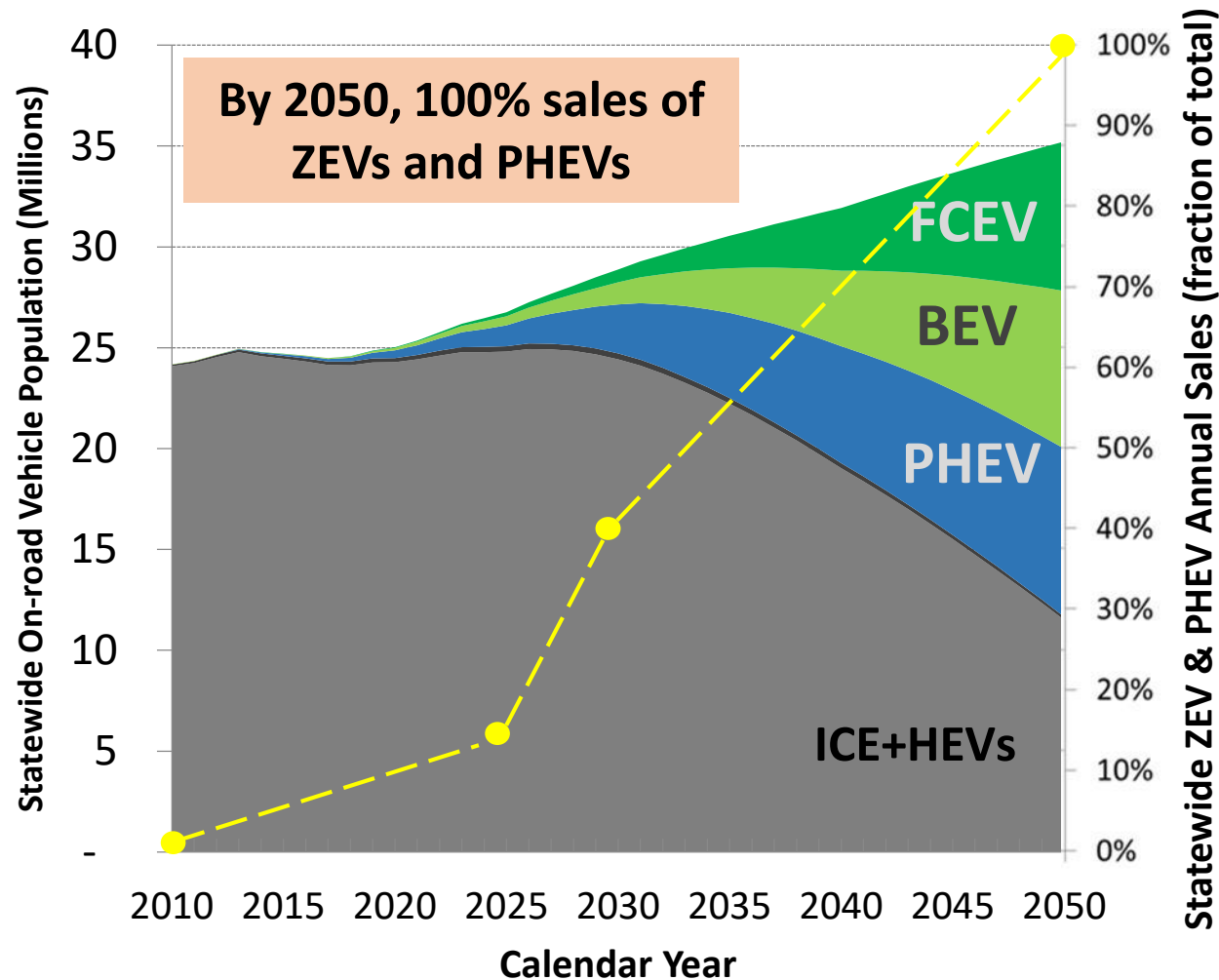


*For each scenario, it is assumed 347,000 ZEVs and PHEVs have been placed in California through 2017 model year. See Section III.B.2 and Section V.C (Table 8).

Scenario development to evaluate strategies for long-term emission reductions

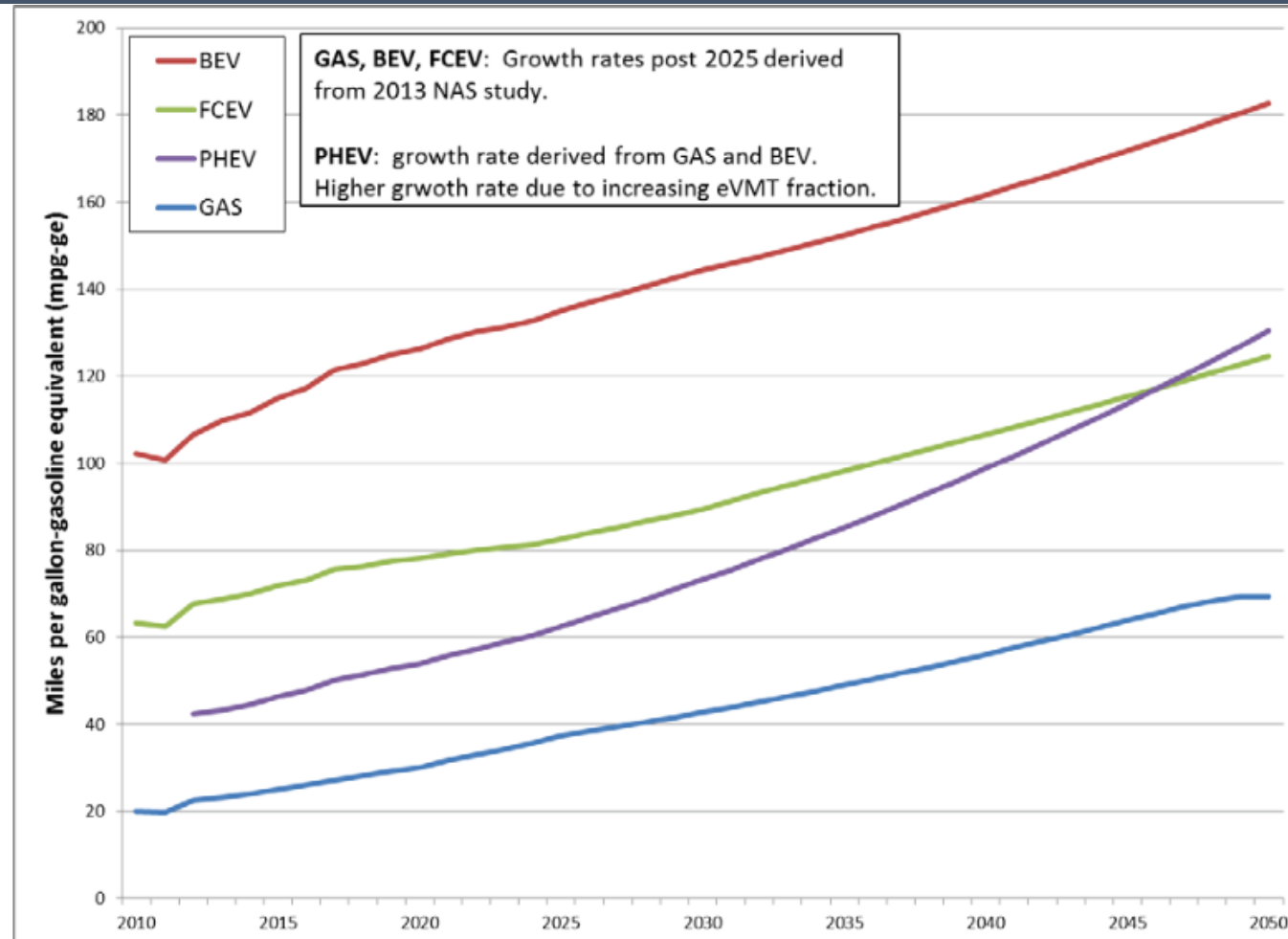
- CARB Vision modeling tool
- Current scenarios developed for Mobile Source Strategy report, released May 2016
- Same mobile source strategies used in 2017 Scoping Plan
- Updated light duty technology assumptions from Midterm Review (MTR) to be added to EMFAC 2017 and new Vision scenarios going forward

What might the light duty sector need to do to achieve needed reductions?



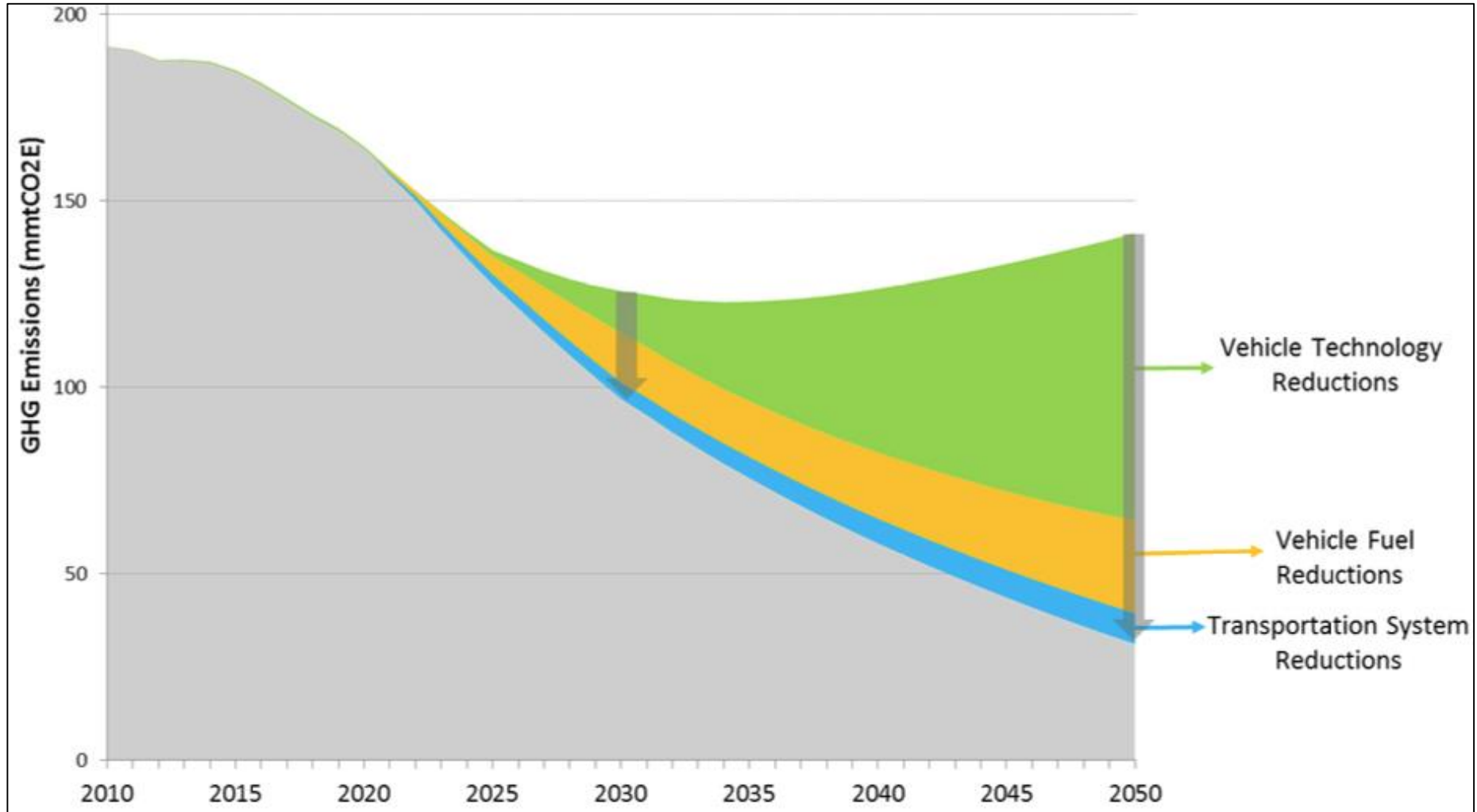
- Compared to MY2025 vehicles, MY2035 vehicle emissions would be:
 - ~50% lower GHGs (emission rate declines 5-7% year-over-year)
 - ~40% lower NOx
- Significant increases in renewable fuel feedstocks and energy supply
- Slower growth of vehicle miles traveled (VMT) from LDVs

LDV Fuel Economy Projections by Tech Type



MPG-GE represents new vehicle fuel economy in real-world on-road conditions. GAS is a category that includes both gasoline and non-plug-in hybrid vehicles combined. The 2013 NAS Study is the 2013 National Academy of Sciences "Transitions to Alternative Vehicles and Fuels" Report

Scenario statewide on-road GHG emissions *LDV and HDV well-to-wheel emissions*



Sensitivity Scenario on PHEV sales and eVMT

Sensitivity scenarios from CARB's Midterm Review report, Jan 2017

